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Althouse

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(54) **RANGE LIMITED ANTENNA**

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(51) **Int. Cl.**
 H01Q 21/00 (2006.01)
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 See application file for complete search history.

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(57) **ABSTRACT**

Range limited antenna includes at least two sets of antenna elements and an RF signal processing network connected to each set of antenna elements. The network has a function, $F(\Xi,x)=\Phi_A(x)-\Phi_B(x)+\Phi_C(x)-\Phi_D(x) \ldots +\Phi_{N-1}(x)-\Phi_N(x)$, where x is a signal, $\Phi_A(x)$ is the phase angle of signal x at the first element set, $\Phi_B(x)$ is the phase angle of signal x at the second element set, $\Phi_N(x)$ is the phase angle of signal x at the set N, and Ξ contains all additional parameters which bear on the system. The network is configured to pass a signal for which $F(\Xi,x)>\epsilon$, where ϵ is a threshold amount, such that the antenna has gain to signals within a radius and has attenuation outside the radius.

20 Claims, 4 Drawing Sheets